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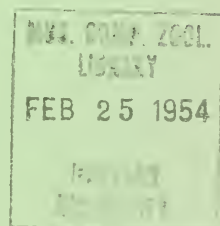


# The Great Basin Naturalist

December 30, 1953

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# The Great Basin Naturalist

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VOLUME XIII

December 30, 1953

Nos. 3-4

## PACIFIC ISLANDS HERPETOLOGY NO. VIII, KOREA<sup>(1)</sup>

VASCO M. TANNER  
Professor of Zoology and Entomology  
Brigham Young University

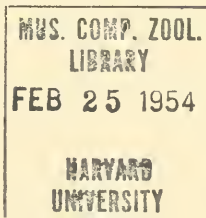
The ten species discussed in this report were all collected in the proximity of Seoul, Korea. The writer is pleased to thank Capt. Ted Tibbitts of the U.S. 5th Epidemiological Field Unit for these specimens. Captain Tibbitts, a former student of this institution, has sent many valuable reptile specimens to us. While he was stationed in Florida, he sent us many rare species for the museum collection. He is a good preparator, which makes the material doubly valuable.

The Korean peninsula, with a surface area of about 85,246 square miles, extends from Manchuria, 43° 2' N. latitude, southward to 38° 12' N. latitude. The Eastern most point, near the mouth of the Yalu River, is Maando, 124° 11' East longitude.

The land boundary is formed in large part by the Yalu and Tumen rivers; which separate Korea from South Manchuria and Eastern Siberia. The Russo-Korean frontier, only 20 miles long, is about 80 miles from Vladivostok. Korea is divided into fourteen provinces, each of which is subdivided into counties and districts. Following World War II, the peninsula was divided into North and South Korea. In September, 1947, South Korea (the American Zone south of latitude 38° N.) had a population of between 20 and 21 million people, and North Korea (the Soviet Zone, north of 38° N. latitude) had 8 million making a total for the country as a whole of between 28 and 29 million inhabitants.

Seoul, the cultural center of Korea, and since 1392 the Capital, is located midway between the north and south extremities and not

(1) Contribution No. 138 from the Department of Zoology and Entomology.



far from the west coast. It is the largest city with a population of about 1,100,000 people.

The country is very mountainous. The climate is similar to that of New England and Central East Atlantic States. The national economy is largely based upon agriculture. Mining, and related industries are concentrated in the northern zone. Rice, the staple food crop, is grown in small plots of a few acres in the southern zone. The forests have been badly depleted in the past. A program to restore them, which was initiated by the Japanese, is still being carried forward.

The reptile fauna of Korea is closely related to that of the surrounding regions. Slevin (1925) reported twenty-four species from this country. In this list there are two species recorded, which are not found in the Slevin list.

#### Family DISCOGLOSSIDAE

##### BOMBINA ORIENTALIS (BOULENGER)

Boulenger, 1890, Ann. Mag. Nat Hist. (6), V, p. 143.

BYU 11461-63 Near Mae-Bong, (Capt. Ted Tibbitts) May 18, 1953  
about on the 38  
parallel

Snout flat, slightly rounded, no canthus rostralis; nostrils midway between eye and tip of snout; interorbital space narrower than the upper eyelids; paratoid gland long and narrow; no tympanum; vomerine teeth in two small groups behind and between the level of the choanae; upper surface of head, arms, and body covered with closely set tubercles which are capped with sharp black spines; arms, half the length of the head and body, with four fingers, third longest; a conspicuous patch of horny nuptial excrescences on the inner sides of the arm of the male, on the inner sides of the palmer pad, and first, second, and third fingers; heel reaches corner of mouth when the hind leg is extended along side the body; webbing of the toes extends practically to the tip; fourth toe longest; undersurface smooth, in life colored red with sharply defined irregular black spots; in spirits a dirty white instead of red.

The average measurements of the three male bell-toads, of this report, are as follows: Snout to vent, 49 mm., width of head 17 mm., interorbital width 4 mm.; fore leg 21 mm.; and hind leg 58 mm., These specimens, which are very uniform in size and coloration, were taken by Capt. Tibbitts on hill 1468 near Mae-Bong at an

elevation of about 2000 feet. He preserved them in alcohol and formalin, then wrapped them in cheese cloth. When they reached me the red color was present over much of the belly area, especially on the palms.

#### Family BUFONIDAE

##### BUFO BUFO ASIATICUS (STEINDACHNER)

Steindachner, Novara Exped., Zool., I, Amph. p. 29.

BYU 11456 Seoul, Korea (Capt. Ted Tibbitts) Sept. 23, 1953

Snout rounded, slightly flat, with a canthus rostralis; nostril just beneath the canthal angle, nearer the eye than the snout, tympanum round, small but distinct, and beneath the end of the long well developed paratoid gland; dorsal surface blackish with many tubercles of varying sizes, third finger longest; fourth toe longest; inner metatarsal tubercle prominent with cutting edge. The ventral surface granular, whitish, suffused with a few blackish blotches. Measurements are as follows: tip of snout to vent 62 mm.; width of head 24 mm.; interorbital width 65 mm.; fore limb 33 mm.; hind limb 73 mm. This subspecies of the European Toad, *Bufo bufo* is widespread throughout North Eastern China, Southern Russia and Korea.

#### Family BREVICIPITIDAE

##### KALOULA BOREALIS BARBOUR

Barbour, 1908, Bull. Mus. Comp. Zool., Vol. 51, p. 321.

BYU 11464 Yung-Dong-Po, (Capt. Ted Tibbitts) May 5, 1953  
Korea

Snout rounded, no canthus rostralis; eyes small and widely separated, snout as long as interorbital width; third finger longest, toes webbed at base; metatarsal strong with cutting edge; hind leg about as long as length from tip of snout to vent. Dorsal body covering smooth except for a few small pits around the head region. Color blackish above; beneath brownish.

Collected in May at an elevation of 1000 feet.

#### Family RANIDAE

##### RANA JAPONICA (GUNTHER)

Gunther, 1858, Cat. Batr. Sal. Brit. Mus. p. 109.

BYU 11453-55 Korea National (Capt. Ted Tibbitts) July 12, 1953  
Forest near  
Seoul

Snout pointed, vomerine teeth two oblique patches on a line

near the center of the choanae and a little behind them. Nostrils nearer the end of the snout than the eyes; tympanum round, covered with a black streak which extends from the corner of the eye to the shoulders. diameter two thirds that of the eye; lower jaw streaked or blotched with a blackish line; third finger long; hind legs long, about as long as the body from tip of snout to vent.

Color, a whitish dorsal stripe, bordered by a dusky brown; ventral whitish.

Two young specimens show similar markings to those found on the adult male. This species is found in China and is common in Japan.

#### RANA NIGROMACULATA HALLOWELL

Hallowell, 1860, Proc. Acad. Nat. Sci. Phila., p. 500.

|           |                  |                      |                |
|-----------|------------------|----------------------|----------------|
| BYU 11283 | Surwon, Korea    | (Capt. Ted Tibbitts) | May 2, 1953    |
| F. No. 4  |                  |                      |                |
| 11284     | Yung Dong-Po,    | (Capt. Ted Tibbitts) | May 12, 1953   |
| F. No. 5  | Korea            |                      |                |
| 11533-40  | 5 Miles South of | (Capt. Ted Tibbitts) | April 25, 1953 |
| F. No. 6  | Seoul, Korea     |                      |                |

Snout pointed with nostrils nearer the eyes than the tip of the snout; vomerine teeth in two patches between the choanae; inter-orbital width narrow, about one half the width of the eyelid. Tympanum not round, long axes a little greater than the width, first finger longer than second; length of arm tip of third finger 35 mm.; length of hind leg from tip of sixth toe to vent 108 mm.; length of body from tip of snout to vent 70 mm.; Distinct whitish dorsolateral fold extends from posterior corner of the eye to hind leg; between the dorsolateral folds and the dorsal white streak are two blackish bands with long narrow folds; the thighs and tibia are spotted with black dots or bars; the ventral surface is immaculately white.

Eight juvenile specimens, about a third as large as the adult reported above were collected in the rice paddies on April 25, 1953, by Captain Tibbitts. This species is widely distributed in Eastern Asia. It has been reported from Vladivastok in the north to Bangkok, Siam in the south.

#### Family LACERTIDAE

##### TAKYDROMUS AMURENSIS PETERS

Peters, 1881, Sitz. Ber. Berlin, Naturf. Fr., p. 71.

|           |                   |                      |               |
|-----------|-------------------|----------------------|---------------|
| BYU 11561 | Anyang, Korea     | (Capt. Ted Tibbitts) | Nov. 18, 1953 |
|           | Mountain top 1785 |                      |               |

Rostral broader than high. in contact with the supralabial. an-

terior nasal and internasal; two loreals, the large one separated from contact with the large anterior supraocular by a small scale. Supralabials six on one side and five on the other; infralabials five; temporals smooth; a row of granules between the supraoculars and superciliaries; four pair of submentals, the fourth pair longer than the other three combined; the large collar scales smooth; seven rows of keeled dorsal scales; eight rows of ventral scales, the lateral row slightly keeled; at about the middle of the body four rows of small keeled scales border the ventral large scales; four inguinal pores on each side; four rows of strongly keeled scales on the dorsal of the tail; lamellae on underside of fourth toe 27-25. Color light brownish above with black spots, bordered with dark brownish granules and a row of lateral whitish spots; undersurface whitish. Total length 156 (47 + 109) mm.

It will be noted that the specimen described above does not agree in all details with the descriptions of *amurensis*. It has four inguinal pores on each side while *amurensis* is described as having three on each side; *wolteri*, which is found in Korea, has only one inguinal pore on each side. This specimen does not have a white streak from the eye to the collar.

Mr Slevin reports this species from many localities in Korea.

#### EREMIAS ARGUS PETERS

Peters, 1869, Mon. Ber. Berlin Akad. Wiss., p. 61.

BYU 11457-60 Yung-Dong-Po, (Capt. Ted Tibbitts) May 7, 1953  
F. No. 3 Korea

Rostral pentagonal, in contact with the first supralabials, and large supranasals; nostril small and round between three nasals; internasals smaller than the supranasals; prefrontals separated by two small median prefrontals (No. 11457); frontal wide anteriorly and tapering posteriorly, in contrast with the first supraocular; three supraocular, the posterior one small, separated from the superciliaries, anteriorly by a single and posteriorly a double row of granules; a pair of granular patches in contact with the first superciliaries, frontals, prefrontals, and anterior supraoculars; parietals not as long as frontal in contrast behind with a small interpartietal; two loreals, a long subocular in contact with the fifth, sixth and seventh supralabials; nine supralabials; seven infrabials; dorsal surface of body covered with small granules; a collar of ten large smooth neck scales;



ventral scales smooth, twelve across the abdomen. Tail with rings of larger, keeled, pointed scales. Color, ventral surface whitish, a bluish cast on the belly scales. Dorsal scales brownish with three rows of circular patches of blackish scales with a few white scales in the center, on each side of the medium line. This is a very attractive looking lizard. It was taken on a small grassy hill.

### Family COLUBRIDAE

#### ELAPHE DIONE (PALLAS)

Pallas, 1773, Reise Russ. Reichs, II, p. 717.

|           |                   |                |              |
|-----------|-------------------|----------------|--------------|
| BYU 11281 | 8 Miles Southwest | (Ted Tibbitts) | May 20, 1953 |
|           | of Seoul, Korea   | (Ted Tibbitts) | May 20, 1953 |
| 11282     | Aesium-Ni, Korea  | (Ted Tibbitts) | May 23, 1953 |

The description of specimen No. 11281 is as follows: Rostral broader than high, in contact with the first supralabial, anterior nasal, and both internasals; frontal with a broad base in contact with the prefrontals; parietals longer than the frontal; nostril large, between two nasals; one loreal and one preocular, not in contact with the frontal; two postoculars, and one supraocular; eight supralabials. Anterior chin-shields long, in contrast with the five anterior pairs of infralabials. Twenty-three rows of smooth dorsal scales at middle of the body; one hundred ninety gastrosteges, seventy-three urosteges; anal divided. Color, in spirits, light tawny, with many irregular dark crossbars. Under surface, yellowish with three rows of longitudinal blotches. Length 602 mm.

A widely distributed species in north-western Russia, northern China, and Korea.

#### NATRIX TIGRINA LATERALIS (BERTHOLD)

Berthold, 1859, Nachrichten Ges. Wiss. Goettingen, p. 180.

|           |                          |                      |              |
|-----------|--------------------------|----------------------|--------------|
| BYU 11280 | 8 Miles Southwest        | (Capt. Ted Tibbitts) | May 20, 1953 |
|           | F. No. 1 of Seoul, Korea |                      |              |

Rostral broader than high, in contrast with the first supralabial, anterior nasal, and internasals; prefrontals in contact with the supraoculars; frontal broader than the supraoculars; parietals large; supralabials seven; infralabials nine; one loreal; two preoculars; three postoculars; two large chin shields; second pair in contact with infralabials four, five and six; nineteen rows of keeled body scales; anal divided; urosteges seventy. Color tawny olive with reddish cast in the lateral scale patches between the black spots of the anterior third of the body; posterior portion of the dorsal scales blackish with

same greenish lateral scales; ventral scales whitish anteriorly, becoming blackish in the caudal area. Length 674 mm. Collected on a small grassy hill 8 miles south-west of Seoul.

Family CROTALIDAE

AGKISTRODON BLOMHOFFII BREVICAUDUS STEJNEGER

Stejneger, 1907, Herp. of Japan, Bull. 58, U.S. Nat. Mus. pp. 463-467.  
BYU 11452 7 miles Southeast (Capt. Ted Tibbitts) June, 1953  
of Seoul, Korea

Rostral as broad as high; internasals small; frontal a little longer than broad; supraoculars as long as the parietals; nostral in the anterior edge of the large anterior nasal; two loreals; two preoculars; two postoculars; supralabials seven; infralabials ten; scale rows twenty-one; single anal; forty-two subdivided urosteges. Color grayish with a series of black blotches on each side of the dorsal line, top of head black with a streak of yellow extending back from the eyes and above the black stripe which is above the supralabials; under surface black posteriorly, becoming mottled with white anteriorly.

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### A NOTE ON THE COMMON LOON IN SOUTHERN COLORADO

The status of the Common Loon (*Gavia immer immer*) as a winter resident in the San Luis Valley (an intermontane basin) of southern Colorado has apparently been a point of question for many years. Bergtold (A Guide to Colorado Birds, 1928) maintains that it only occurs as a rare migrant. Booth (Birds of the West, 1948) describes it as wintering mainly on the west coast, while Bailey (Handbook of Birds of the Western United States (revised ed.), Houghton Mifflin Co., Boston, 1935) has it wintering over all of the United States. An unpublished checklist by Donald A. Ryder in 1950 lists it as questionable, with the only record being from the Sangre De Cristo Range of mountains that lie east of the valley. Another unpublished list by Dr. Paul Cecil Bibbee for the summer of 1950 does not even include the Common Loon.

In the interest of clarifying this situation, I would like to report that a specimen was taken on February 24, 1953 at the state fish hatchery near La Jara, Colorado, which is in the southern part of the San Luis Valley. The bird was shot while disturbing the trout and then kept frozen for several days, after which, I acquired it and had it mounted for our museum here at Adam's State College. It is in full winter plumage.

Joseph C. Daniel, Jr.  
Biology Dept.  
Adam's State College  
Alamosa, Colorado



# GEOPHILOID CHILOPODS OF THE HAWAIIAN AND OTHER OCEANIC ISLANDS OF THE PACIFIC

RALPH V. CHAMBERLIN  
University of Utah

Through the courtesy of N. L. H. Krauss, several small collections of chilopods and millipeds from the Pacific islands have come into the author's hands. These collections have added considerably to the known myriopod fauna of these islands. Thus the present paper contains descriptions of five new species in the Geophilida, three of which represent new genera, these bringing the total number of members of this order now known from these oceanic islands to seventeen. In addition to these new forms, occasion is taken to include descriptions of a new *Mecistocephalus* from Malaya and of a new *Ballophilus* from Hong Kong, the types of which were also collected by Mr. Krauss. The types of the new species are all retained in the author's collection.

## SCHENDYLIDAE

### Genus NYCTUNGUIS Chamberlin

*Nyctunguis* Chamberlin, 1914, Bull. Mus. Comp. Harvard, vol. 58, p. 201.  
*Schendylunguis* Verhoeff, 1926, Zool. Anzeiger, vol. 69, p. 101.

A genus represented by many species in Mexico and the western United States.

### NYCTUNGUIS BRYANUS Chamberlin

*Nyctunguis bryanus* Chamberlin, 1926, Bull. Bernice P. Bishop Mus., no. 31, p. 92.

The type of this species was taken on Necker Id. The present collection contains a specimen from Hawaii.

### GENUS LANONYX, new

Like *Mexiconyx* of Mexico and *Plesioschendyla* of New Caledonia, in which the coxal pore is similarly single and homogeneous, in lacking ventral pores on the sternites. While agreeing with *Mexiconyx* in possession of a claw on the anal legs, aside from lacking ventral pores, it differs superficially from that genus in the much shorter prehensors.

Generotype *LANONYX LANAIUS*, new species

It is thought best to defer more detailed description of the

mouthparts pending the acquisition of more material, the small size making dissection of the single specimen for the present inadvisable.

**LANONYX LANAIUS** Chamberlin, new species

A small form of orange color, with legs light yellow; anterior segments showing two lines of spots or blotches along the venter.

Head short, with antennae relatively long, filiform; head fully covering the prehensors in dorsal view.

Prehensors when closed not attaining front margin of head; claws slender; all joints unarmed. Anterior margin of prosternum without teeth but with two low tubercular eminences adjacent to median excision suggesting teeth; chitinous lines faint.

Ventral pores absent.

Last ventral plate very wide. A single large coxal pore on each side, the gland especially large, homogeneous.

Anal leg in the male notably crassate; ending in a well developed claw.

Pairs of legs, 43.

Length, about 12 mm.

LOCATION: Hawaiian Is.: Lanai Id., Lanai Mts. One male taken Nov. 1, 1947 by N. L. H. Krauss.

**BALLOPHILIDAE**

Genus **THALTHIBIUS** Attems

**THALTHIBIUS MICROCEPHALUS** Brolemann

*Thalthibius microcephalus* Brolemann, 1900, Bull. Mus. Nat. Hist. Paris, vol. 15, p. 417.

Recorded from the Mariana Islands. A related species occurs in the Seychelles.

Genus **BALLOPHILUS** Cook

**BALLOPHILUS LIBER** Chamberlin, new species

Pale yellow, without any inner pigment whatsoever.

Head wider than long, semicircularly rounded anteriorly. Antennae very strongly geniculate, conspicuously clavate beyond the angle; last article much longer than thick. Basal plate shorter than the succeeding tergite.

Ventral pores in a transversely elliptic area which may be more or less constricted at the median line; pores present on sternites back to the fifth from the last; poriferous area not elevated.

Two large coxal pores on each side, these wholly free from the sternite. Last sternite trapeziform.

No anal pores present.

Pairs of legs, 85.

Length, 38 mm.

LOCALITY: Hong Kong. One male taken under bark in May, 1948, by N. L. H. Krauss.

#### BALLOPHILUS ROUXI Silvestri

This species is like *B. alluadi* Ribaut in lacking pores on the last four sternites. It differs from the former species in lacking all internal pigment and from both in the more strongly clavate antennae, in having the head wider than long as well as in not having the sternal poriferous areas elevated. The number of pairs of legs is the highest recorded for any species.

#### ORYIDAE

##### Genus ORPHNAEUS Meinert

##### ORPHNAEUS BREVILABIATUS (Newport)

*Geophilus brevilabiatus* Newport, 1845, Trans. Linn. Soc. London, vol. 19, p. 436.

*Orphnaeus lividus* Meinert, 1870, Naturh. Tidsskr., Ser. 3, vol. 7, p. 19.

*Orphnaeus brevilabiatus* Haase, 1887, Abh. Mus. Dresden, No. 4, p. 111.

This is probably the most abundant of tropical chilopods, and is generally distributed in islands of the Pacific and Indian areas.

#### MECISTOCEPHALIDAE

##### Genus MECISTOCEPHALUS Newport (sens. str.)

*Mecistocephalus* Newport, 1842, Proc. Zool. Soc. London, vol. 10, p. 178.

*Lamnonyx* Cook, 1895, Proc. U.S. Nat. Mus., vol. 18, p. 61.

*Mecistocephalus* (emend.) Chamberlin, 1926, Canad. Ent., vol. 52, p. 184.

The species of this genus now known from the more strictly oceanic islands of the Pacific, i.e. excluding such groups as the Fijis and Solomons, may be separated by means of the following key:

#### Key to Species of Mecistocephalus

- |   |                            |
|---|----------------------------|
| 1. Pairs of legs 45 .....                     | 2                          |
| Pairs of legs 47 or 49 .....                  | 3                          |
| 2. Prefemur of prehensors with 2 teeth .....  | <i>M. spissus</i> (Wood)   |
| Prefemur of prehensors with only 1 tooth .... | <i>M. malayensis</i> sp.n. |
| 3. Pairs of legs 47 .....                     | 4                          |
| Pairs of legs 49 .....                        | 5                          |

4. Palpi of second maxillae very short, exceeded by the first maxillae ..... *M. tahitiensis* Wood  
Palpi of second maxillae of usual length (inner corners of lateral pieces of labrum not produced), ..... *M. kraussi* sp. n.
5. Median piece of labrum tridentate ..... *M. tridens* Chamb.  
Median piece of labrum unidentate ..... 6
6. Sternal impressions anteriorly furcate ..... 7  
None of sternal impressions anteriorly furcate .. *M. waikaneus* sp.n.
7. Anterior sternal impressions showing short branches, the others not furcate ..... *M. angustior* Chamb.  
All sternal impressions anteriorly clearly furcate ..... 8
8. Anterior angle of sternal impressions rectangular, last sternite triangular ..... *M. brevisternalis* Tak.  
Anterior angle of sternal impressions very obtuse; last sternite trapeziform ..... *M. maxillaris* (Gervais)

#### MECISTOCEPHALUS ANGUSTIOR Chamberlin

*Mecistocephalus angustior* Chamberlin, 1920, Bull. Mus. Comp. Zool. Harvard, vol. 64, p. 59.

Recorded thus far only from the Society Is. (Tahiti).

#### MECISTOCEPHALUS BREVISTERNALIS Takakuwa

*Mecistocephalus brevisternalis* Takakuwa, 1934, Annot. Zool. Japan, vol. 14, no. 3, p. 362, fig. 11.

Described from the Marshall Is., and so far not reported from elsewhere.

#### MECISTOCEPHALUS KRAUSSI Chamberlin, new species

Head black except the anterior portion of the frontal division which is abruptly lighter, yellowish, the basal plate similarly contrasting in its lighter color. Prosternum and the claw and proximal portion of prehensors also blackish. Dorsum yellow, typically with a longitudinal geminate blackish stripe which for the most part is composed of fine dots and streaks of pigment; similar pigment sometimes showing on the posterior sternites.

Head nearly twice as long as broad; anterior and posterior margins straight; sides converging caudad from level of frontal suture, at first moderately and then more strongly over the caudal third of length. Conspicuously punctate.

Prosternum and prefemur of prehensors conspicuously punctate. Prefemur with two nodular teeth, the other joints with one each and

the claw also at base with a very obtuse angulation or tooth-like eminence.

Anterior clypeus larger than the posterior, bearing the usual six setae. Median piece of labrum moderately wider anteriorly than posteriorly, the sides incurved; caudally blunt, with the apex but slightly free; lateral pieces not produced at inner angles. The palpi of second maxillae extending well beyond the lappets of the first maxillae, the terminal joint with numerous long setae, the second joint bearing fewer similar setae on mesal surface.

Sternal impressions not at all furcate anteriorly.

Last ventral plate moderately trapeziform, its caudal margin gently convex, the lateral margins moderately concave; posterior portion bearing numerous, but not dense, setae. Coxae with a band of well separated setae along mesal border. Coxal in average individuals about 25 on each side.

Pairs of legs, 47.

Length up to 48 mm.

LOCALITY: Palmyra Id. Fourteen specimens taken in Feb., 1948, by N. L. H. Krauss.

Apparently closest to *M. tahitiensis* (Wood), but differing in the longer palpi of the second maxillae, these much exceeding the processes of the first maxillae. The caudolateral corners of the lateral pieces of the labrum not produced as in *tahitiensis*, the coxal pores of which are also fewer.

**MECISTOCEPHALUS MALAYENSIS** Chamberlin, new species

Body light yellow, the head and prehensors orange.

Head a little more than two thirds as wide as long; narrowed caudad from frontal region, the narrowing more abrupt toward caudal end.

Anterior clypeus much narrower than the posterior. Middle piece of labrum comparatively wide, slightly wider in front than behind, the caudal margin abruptly angular. Palpi of second maxillae long, arching well in front of first maxillae; last joint with a small straight claw and bearing many large setae, the adjacent joint with but few.

Prehensors comparatively short; all joints lacking teeth except the prefemur which has a denticle at distal end.

Sternal impression not furcate, deeply impressed posteriorly, more lightly anteriorly.

Last ventral plate somewhat shield-shaped, the sides convex and the caudal end bluntly rounded. Coxal pores numerous, nearly uniform in size.

Pairs of legs, 45.

Length, 23 mm.

LOCALITY: Malaya, Pahang, Cameron Highlands. Two adult and two young specimens taken in July, 1948, by N. L. H. Krauss.

Differing from *M. diversidens* (Silvestri) of India, which it resembles in number of pairs of legs, in the narrow preclypeus and the broader, caudally strongly narrowed last sternite, etc.

#### MECISTOCEPHALUS MAXILLARIS (Gervais)

*Geophilus maxillaris* Gervais, 1837, Ann. Soc. Nat., ser. 2, vol. 7, p. 52.

*Lamnonyx maxillaris* Silvestri, 1919, Rec. Ind. Mus., vol. 16, p. 61.

Not uncommon in the Society Is., the Marquesas, and other islands of the Pacific. Elsewhere recorded from the West Indies, South America, and west Africa. Occasional in hothouses of Europe and America.

#### MECISTOCEPHALUS SPISSUS Wood

*Mecistocephalus spissus* Wood, 1862, Jour. Acad. Nat. Sci. Phila., ser. 2, vol. 5, p. 43.

*Lamnonyx spissus* Silvestri, 1904, Fauna Hawaiensis, vol. 3, p. 326, pl. 11, figs. 5-7.

Endemic to the Hawaiian Is. Recorded from Oahu, Kauai, Molokai and Hawaii.

#### MECISTOCEPHALUS TAHITIENSIS Wood

*Mecistocephalus tahitiensis* Wood, 1862, Jour. Acad. Nat. Sci., ser. 2, vol. 5, p. 43.

*Mecistocephalus tahitiensis porosus* Haase, 1887, Abh. Mus. Dresden, no. 5, p. 101, pl. 6, fig. 108.

*Lamnonyx tahitiensis* Silvestri, Rec. Ind. Mus., vol. 16, p. 74, fig. 18.

*Lamnonyx tahitiensis maior* Verhoeff, 1925, Ark. Zool., vol. 17, no. 3, p. 45, 47.

Described originally from Tahiti, Society Is. Also occurring in the Marquesas, Samoa, Australia, and New Guinea.

#### MECISTOCEPHALUS TRIDENS Chamberlin

*Mecistocephalus tridens* Chamberlin, 1922, Psyche, vol. 29, no. 4, p. 178.

*Mecistocephalus tridens* Attems, 1929, Das Tierreich, Lief. 52, p. 136.

This species, described originally from Java, is listed by Attems as occurring at Honolulu, but this record is probably to be questioned.



**MECISTOCEPHALUS WAIKANEUS** Chamberlin, new species

Reddish yellow, the head and prehensors chestnut.

Cephalic plate nearly twice as long as wide; slightly narrowing caudad from the frontal region over about two-thirds of the length, and then more abruptly to caudal end; caudal margin straight, the anterior obtusely subangular. The pleural tooth short and conical, directed straight forward.

Anterior clypeal area much exceeding the posterior, its median length being about four times as long as that of the latter. Median piece of labrum comparatively large, narrowly shield shaped, its acute, subdentiform caudal apex projecting freely beyond margin of lateral pieces. Lateral pieces with caudal margin oblique and nearly straight, the mesal corners not produced. Palpi of second maxillae of normal sternal impression weak, not furcate anteriorly.

Last ventral plate longer than wide, narrow, trapeziform, Coxal pores small, typically seven on each side.

Pairs of legs, 49.

Length, 20 mm.

LOCALITY: Hawaiian Is.: Waikane Id. Two specimens taken in rotten log on Dec. 28, 1928.

#### GENUS **FUSICHILA**, new

Differing from all other genera of the Mecistocephalidae in having the labrum composed of a single piece, this probably formed by the fusion of the lateral pieces and the suppression of the median piece. Coxal pores very few in number, the type showing only two on one side, four on the other.

Generotype: *FUSICHILA WAIPAHEENAS* sp. n.

**FUSICHILA WAIPAHEENAS** Chamberlin, new species

Body in general yellow, the head and prehensors dusky chestnut.

The head nearly twice as long as broad; conspicuously narrowed over posterior half; anterior margin slightly convexly angular between the rounded corners. Pleural tooth conical, straight.

Anterior area of clypeus larger than the posterior, dividing the latter with a narrow extension down the middle line. Labrum broad anterocaudally at middle, narrowing laterad on each side, with the caudal margin straight and wholly smooth and the anterior margin convex. Palpi of second maxillae relatively short, though longer than

in *M. tahitiensis*; last joint bluntly rounded at end, bearing a well developed claw and about seven stout setae.

Sternal impression deep posteriorly, not furcate anteriorly.

Last sternite broad anteriorly, strongly narrowed caudad, the caudal margin convexly rounded. Coxal pores in the type two on one side, four on the other, the pores small, well separated from each other and from the sternite.

Pairs of legs, 49.

Length, about 25 mm.

LOCALITY: Hawaiian Is.: Waipahee, Kauai. One female taken Jan. 13, 1944 under bark of a dead tree by N. L. H. Krauss.

#### PACHMYERINIDAE

##### Genus ZELANION Chamberlin

*Zelanian* Chamberlin, 1920, Bull. Mus. Comp. Zool., vol. 64, no. 1, p. 39.  
*Sepedonophilus* (part. max.) Attems, 1929, Das Tierreich, Lief. 52, p. 268.

##### Generotype: ZELANION DUX Chamberlin

This is a genus heretofore known only from New Zealand where it is represented by some ten species. Attems(op.cit.) merges this genus with his *Sepedonophilus*; but it seems adequately distinct in lacking lappets on the syncoxite of the first maxillae and in lacking the conspicuous process of the mesodistal angle of the coxa of the second maxillae.

##### ZELANION **HAWAIIENSIS** Chamberlin, new species

Dorsum of type as preserved a somewhat dusky brown, with head and prehensors chestnut and legs yellow.

Frontal suture not evident.

The single clypeal area on anterior border, large, white in color; bearing no setae, but a single seta at caudolateral edge on each side, with no other setae adjacent to this area.

Lateral pieces of labrum nearly meeting in front of the median piece, pectinate throughout length; median piece bearing four dark, stout teeth. First maxillae with syncoxite bearing no lappets; first joint of palpus with a short lappet. Claw of second maxillae long and nearly straight, the articles setose on mesal side.

Prehensors surpassing the head anteriorly; claw armed at base with an acute tooth; prefemur with a nodular tooth at distal end and showing a low, very obtuse prominence at middle; prosternum with sclerotic lines not evident, bearing two teeth anteriorly.



Dorsal plates deeply bisulcate.

Last ventral plate narrow, trapeziform. Each coxa bearing ventrally about twelve simple, well separated, pores of nearly uniform size.

Anal legs of male crassate, but last three joints thinner, the second tarsal slender and bearing a claw.

Pairs of legs, 39.

Length, 28 mm.

LOCALITY: Hawaii. One male.

Differing from the New Zealand *Z. sitocala* (Attems), which in general it resembles, in lacking setae on the clypeal area proper and setae adjacent thereto excepting the two above mentioned, in having four instead of five teeth on the median piece of labrum, and in the fewer, more uniform coxal pores, etc.

Genus PACHYMERIUM C. L. Koch

*Pachymerium* C. L. Koch, 1847, in Koch-Panzer, Krit. Rev. Ins., vol. 12, pp. 85, 187.

Primarily a palearctic genus.

PACHYMERIUM FERRUGINEUM (C. L. Koch)

*Geophilus ferrugineum* C. L. Koch, 1835, Deutschl. Crust., Myr. u. Arach., fasc. 3, vol. 2.

*Pachymerium ferrugineum* C. L. Koch, 1847, in Koch-Panzer, Krit. Rev., vol 3, p. 187.

A widespread palearctic species, common in Europe and North America. It has been found on Hawaii where undoubtedly introduced.

Genus NESOMERIUM, new

A single, finely areolate clypeal area.

Labrum well developed, tripartite; the lateral pieces overlapping the median in front, strongly pectinate throughout; median piece bearing long pectiniform teeth, typically not more strongly sclerotized than those of the lateral pieces. Mandible with three or four pectinate lamellae.

First maxillae apparently lacking palpi; the median processes bearing papillae on mesal surface, without setae. Claw of palpus of second maxillae not pectinate; distal and second joint strongly setose; coxae completely fused.

Ventral pores present in front of caudal margin of sternites.

Last ventral plate very wide. Coxal pores one on each side, this large and simple.

Tarsi of anal legs biarticulate, not bearing a claw.

Genotype: *NESOMERIUM HAWAIIENSE*, new species

Differing from *Pachymerium* in the characters of labrum and first maxillae and in having but a single large coxal pore on each side instead of numerous small ones.

**NESOMERIUM HAWAIIENSE** Chamberlin, new species

Head longer than wide in about ratio 3.8:3; corners rounded; the width nearly uniform or slightly wider behind than in front; sides weakly convex; anterior margin straight; no frontal suture.

Lateral pieces of labrum nearly meeting at middle in front of middle piece; closely fringed with basally stout, distally fine, teeth; piece bearing 10-12 long, distally fine teeth resembling those of the lateral pieces.

A single median clypeal area, this, in the type, white in color the area small and bearing on middle two erect setae. Coxae of second maxillae completely fused; end of palpus bearing about fifteen rather long, stout setae and a large, simple claw; the adjacent joint with about six syncoxite of the first maxillae in the form of a narrow band lying beneath the anterior border of the syncoxite of the second maxillae; median processes subconical, convex on the outer side, flattened on the inner, this mesal surface bearing numerous papillose processes some of which are rounded or tubercle-like; the first maxillae apparently lacking developed palpi.

Prehensors surpassing the head in front; claw armed at base as is also each of the preceding three joints.

Ventral pores in a transverse area in front of caudal margin of sternites, the area widest at middle and narrowing acutely on each side.

Last ventral plate very wide, subtrapeziform, but its sides strongly convex; the caudal margin straight or slightly concave. One large coxal pore on each side, this wholly covered by the sternite.

In the male the third, fourth, and fifth joints of the anal legs inflated, the two tarsal joints slender.

Pairs of legs, 69.

Length, about 45 mm.

## Genus HONUAPHILUS Chamberlin

*Honuaphilus* Chamberlin, 1926, Bull. Bernice P. Bishop Mus., no. 3, p. 93.

## HONUAPHILUS ALOHANUS Chamberlin

*Honuaphilus alohanus* Chamberlin, 1926, Bull. Bernice P. Bishop Mus., no. 31, p. 93.

Previously reported by the author from Ocean Id., Laysan Id., Johnson Id., and Pearl and Hermes reef, the present collection contains a specimen from Canton Id. in the Phoenix group collected by Mr. Krauss in Oct., 1950.

This species appears to be a beach-dwelling species, and a rather wide distribution on the Pacific islands would not be surprising.

## Genus MARSUKOMERUS Attems

*Marsukomerus* Attems, 1938, Proc. Zool. Soc. London, ser. B, vol. 108, pt. 2, p. 372.

A genus resembling *Honuaphilus* in having a single large coxal pit on each side, but the gland is represented as strictly simple whereas that of *Honuaphilus* is conspicuously composite, numerous independent simple glands opening into the common large tube or cavity. the single labral piece of *Marsukomerus* also is distinctive.

## MARSUKOMERUS PACIFICUS Attems

*Marsukomerus pacificus* Attems, 1938, Proc. Zool. Soc. London, ser. B, vol. 108, pt. 2, p. 373.

The type specimen was taken on Hawaii and provides the only record so far.



A NEW SPECIES OF ACOMATACARUS  
(ACARINA, TROMBICULIDAE) FROM UTAH

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During the course of some sylvatic plague surveys, animals and nests of *Neotoma lepida lepida* Thomas were collected. Upon examination, Chiggers found on one adult male woodrat proved to be sufficiently different that they are herein being described as a new species.

ACOMATACARUS **SEXACIS** Allred and Beck, n. sp.

Body: Engorged specimens of this species are relatively large, measuring up to 940 by 661 microns.

Gnathosoma (Fig. 2): All the palpal setae are branched. The palpal tibia has a bifurcate claw, the large axial prong being internal to the smaller accessory prong. The palpal tarsus has seven branched setae and one spur. The galeal seta has five branches on the outer edge. Each cheliceral blade has one large subapical laterodorsal tooth and apparently six subequal ventral teeth.

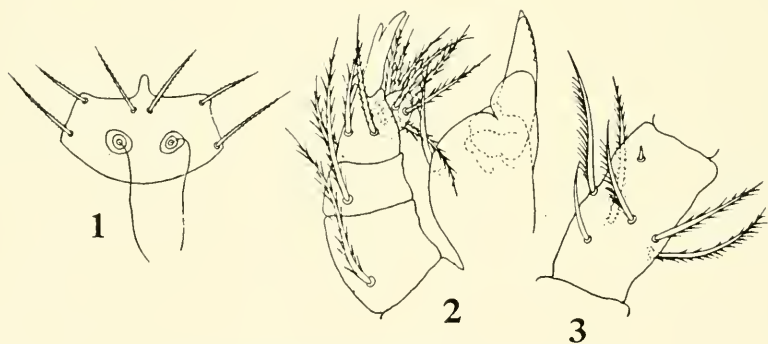
Scutum (Fig. 1): The shape is roughly rectangular, with a moderately convex posterior border. There are no punctae. The sensillary bases are well separated and are on a level with the posterolateral setae. The sensillae are moderately long and without branches or barbs. Standard measurements of the scutum of the holotype (first series) and five of the paratypes are as follows:

|      | AW | P W | SB | ASB  | PSB  | AP | AM | AL | PL | S    |
|------|----|-----|----|------|------|----|----|----|----|------|
|      | 67 | 85  | 30 | .... | .... | 28 | 44 | 39 | 54 | .... |
|      | 67 | 87  | 31 | 28   | 26   | 28 | 41 | 38 | 51 | 69   |
|      | 68 | 92  | 30 | 28   | 24   | 30 | 48 | 43 | 60 | 82   |
|      | 68 | 85  | 30 | 30   | 22   | 24 | 44 | 40 | 54 | 75   |
|      | 68 | 85  | 30 | .... | 21   | 25 | 44 | 41 | 54 | 72   |
|      | 68 | 85  | 30 | .... | 19   | 25 | 41 | 38 | 48 | 75   |
| Ave. | 68 | 86  | 30 | 29   | 22   | 27 | 44 | 40 | 54 | 74   |

Legs: The approximate lengths of the legs and the setal arrangements are as follows: Leg I: 322 microns; coxa, 2 plumose; trochanter, 1 plumose; femur, 6 plumose; genu (Fig. 3), 5 plumose, 1 genuala,

1 microgenuala; tibia, 9 plumose, 2 tibialae, 1 microtibiala; tarsus, 25 plumose, 1 spur, 1 microspur, 1 subterminala, 1 two-branched parasubterminala. Leg II: 304 microns; coxa, 1 plumose; trochanter, 1 plumose; femur, 5 plumose; genu, 4 plumose, 1 genuala, 1 microgenuala; tibia, 6 plumose, 2 tibialae; tarsus, 85 microns long by 20 microns wide (4.3 ratio), 16 plumose, 1 spur, 1 microspur. Leg III: 329 microns; coxa, 1 plumose; trochanter, 1 plumose; femur, 5 plumose; genu, 4 plumose, 1 genuala; tibia, 6 plumose, 1 tibiala; tarsus, 15 plumose, 1 spur.

Body Setae: The dorsal setae vary in number from 52 to 56 in six specimens examined. The anterior and posterior rows are obscure, but the approximate ratio of the holotype is 8:9:2:6:10:8:6:2:2. The humeral and lateral setae of the dorsum are longer than the middle and posterior setae. The majority of the anterior and posterior setae are equal in length, except for a few anterior setae which are slightly shorter. The lengths of the posterior dorsal setae vary from 41 to 44 microns. The ventral setae vary from 52 to 54 in number, and are longer posteriorly.



ACOMATACARUS SEXACIS, new species

Fig. 1. Scutal Plate

Fig. 2. Left Half of Gnathosoma (Dorsal View)

Fig. 3. Right Genu I (Dorsal View)

Type Data: The holotype and 8 paratypes were taken from an adult male *Neotoma l. lepida* 10 miles south of Antimony, Garfield County, Utah by M. Killpack and M. Coffey, July 26, 1952. The holotype and several paratypes are in the collection of the senior author. Other paratypes are deposited in the United States National

Museum and at the Brigham Young University.

Discussion: In Greenberg's key (1950) to the species of *Acomatacarus* of the New World, this species runs to *A. micheneri*. It differs from *micheneri*, however, in several aspects (Table I). Although Greenberg designates *A. micheneri* as lacking in a microgenuala I, Brennan (correspondence) signifies that this species is extremely variable and does possess it.

TABLE 1  
Summary of Diagnostic Characters

|                                      | <i>micheneri</i> | <i>sexacis</i> |
|--------------------------------------|------------------|----------------|
| Overall Length (engorged)            | 575              | 846            |
| Length of Leg I                      | 355              | 322            |
| Length of Leg II                     | 249              | 304            |
| Length of Leg III                    | 334              | 329            |
| Length of Tarsus II                  | $73 = 3.0$       | $85 = 4.3$     |
| Width of Tarsus II                   | 24               | 20             |
| Length of Posterior Dorsal Setae     | 36-39            | 41-44          |
| Number of Dorsal Setae               | 62               | 54             |
| Number of Ventral Setae              | 66               | 53             |
| Number of Setae on Palpal Tarsus     | 6                | 7              |
| Number of Ventral Teeth on Chelicera | 7                | 6(?)           |
| Number of Plumose Setae on Tibia I   | 8                | 9              |
| Number of Plumose Setae on Tarsus I  | 23               | 25             |
| Microgenuala I                       | absent (?)       | present        |
| Parasubterminala                     | 1-branched       | 2-branched     |

## LITERATURE CITED

- Greenberg, B. A Review of the New World Acomatacarus. Annals of the Ent. Soc. of America 45(3):473-491. 1952.



# SYNONYMIC DATA AND DESCRIPTIONS OF NEW GENERA AND SPECIES OF TINGIDAE (Hemiptera)

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The present paper is based upon specimens of Tingidae kindly loaned me by Dr. W. E. China, British Museum of Natural History, London, and Dr. R. E. Sailer, U. S. National Museum, Washington, D. C. Some records are also from my private collection. I also desire to express my sincere appreciation to Dr. H. Schouteden, Koninkrijk Museum van Belgisch Congo, Tervuren, Belgium, for the privilege of examining the many types and specimens of tingids from Belgium Congo and other regions of Africa. The types of the new species described herein are deposited as stated beneath each description. In the comparative measurements, 80 units equal one millimeter.

## CROMERUS **EXCELANS** Drake, new species

Long, moderately stout, densely clothed with very fine, short, golden pubescence. Head black-ferrugineous, with short brownish spines, the median sometimes absent. Rostrum dark brown, reaching to base of mesosternum. Bucculae closed in front. Orifice distinct. Legs rather short, dark ferrugineous. Antennae dark brown to dark ferrugineous, very shortly pilose, measurements—I, 12; II, 25; III, 140; IV, 85.

Pronotum moderately convex, dark ferrugineous, with median carina sharply elevated; lateral carinae absent or at time fairly distinct on posterior triangular process; calli impressed, black; collar mostly biseriate, truncate in front; paranota represented by low narrow cariniform ridge which is wider and thicker opposite calli. Elytra long, with the short golden pubescence almost as dense as on pronotum; costal area narrow, uniseriate, the areolae small, a little larger opposite apex of discoidal; subcostal area biseriate, the cells small; discoidal area narrowed at both ends, widest a little beyond middle, there six cells deep; sutural area with small cells behind discoidal, then larger cells apically.

LENGTH. 4.75 mm.; width, 1.30-1.60 mm.

TYPE (male) and ALLOTYPE (female), Butuan, Mindanao, P. I.,

C. F. Baker, Drake Collection. PARATYPES: 8 specimens, same locality as type; 2 specimens, Island Samar.

*C. invarius* (Walker) has different antennal measurements (I, 28; II, 14; III, 128; IV, 104) and more convex and coarsely punctate pronotum.

#### CROMERUS BIMACULATUS (Distant)

*Teleonemia bimaculata* Distant, Rec. Ind. Mus., 3(2):166, 2 figs., 1909.

A study of the type (male) of *Teleonemia bimaculata* Distant in the British Museum shows that it is a typical member of the genus *Cromerus* Distant, and it is here so transferred (New Combination). The original description is accompanied by fine illustrations of the type. The antennal measurements are—I, 22; II, 10; III, 100 and IV, 85. The median carina is composed of one row of small areolae; known only from the type, taken in Borneo.

#### Genus LASIACANTHA Stal.

*Lasiacantha* Stal, Enum. Hemip., 3:130., 1873.

*Jannaeus* Distant, Ann. Soc. Ent. Belg., 53:118. 1909.

As the type species of the genus *Jannaeus* Distant (*J. cunneatus* Distant) is a typical member of the genus *Lasicantha* Stal (Type, *odontostoma* Stal), the former is relegated here to synonymy; *Jannaeus cuneatus* Distant now becomes a valid species of *Lasiacantha* (New synonymy and new combination). In addition *Jannaeus altimistratus* Takeya is also transferred to *Lasiacantha* (New combination). The other two species described as *Jannaeus* are being transferred to a new genus erected below.

#### HURDCHILA Drake, n. gen.

Head short, with short spines, partly concealed by the hood. Orifice with a long, prominent, tube-like canal with inferior surface removed. Rostum long; laminae foliaceous, areolate, subparallel, open behind. Bucculae areolate, contiguous in front. Hypocostal laminae areolate. Antenniferous tubercles short; antennae moderately long, slender, shortly pubescent; segments I and II short, stout; III long, very slender; IV short, swollen. Pronotum extremely long, moderately convex, with three long, strongly elevated carinae; hind triangular part extremely long, areolate, not quite attaining apex of discoidal area; paranota large, long, strongly reflexed, resting partly on surface of pronotum; hood moderately large, more or less

inflated, produced in front of collar, sometimes beyond apex or head. Elytra longer than abdomen, not abruptly widened near base; divided into the usual areas; discoidal area reaching beyond middle of elytra.

Type of genus, *Jannaeus torcularis* Drake and Poor. In addition *J. mirus* Drake and Poor is also transferred to this new genus (New combination). Erected in honor of Marguerite Poor Hurd who has written many papers on Tingidae as well as drawn many fine illustrations of lacebugs.

The slender pubescent antennae without long bristly and modified hairs and unarmed outer pronotal and elytral carinae, boundary veins of elytral areas, extremely longly produced hind process of pronotum separate *Hurdchila* from *Lasiacantha*.

Genus KAPIRIELLA Schouteden, 1919.

*Kapiriella* Schouteden, Rev. Zool. Africa, Brussels, 6:138. 1919.

*Lembella* Schouteden, Rev. Zool. Africa, Brussels, 6:139. 1919. (New Synonymy)

A study of the generic types of the genera *Kapiriella* Schouteden (*K. leplaei* Schouteden) and (*L. maynei* Schouteden) show that the two species belong to the same genus and that it is now necessary to suppress the latter on the basis of page priority. The species are known only from the mainland of Africa. *Lembella polita* Drake (Proc. Biol. Soc. Wash., 61:150-151, 1948) is identical with *K. leplaei* Schouteden (*loc. cit.*, p. 139) and thus placed in synonymy (New synonymy). The genus *Kapiriella* now comprises three valid species as follows: *K. leplaei* Schouteden, *K. maculigera* (Horvath), and *K. maynei* (Schouteden). It should also be noted that all three species exhibit considerable variation in the intensity of the color pattern.

Genus HAEDUS Distant, 1904

*Haedus* Distant, Trans. S. Afr. Phil. Soc., 14:432. 1904.

*Hormisdas* Distant, Philip. Jour. Sci., 5(1):59-60. 1910 (New Synonymy).

An examination of the generic types of the genera *Haedus* Distant (*H. clypeatus* Distant) and *Hormisdas* Distant (*H. pictus* Distant) make it necessary to suppress the later as a synonym of *Haedus*. As *Hormisdas pictus* Distant, *H. bellus* Drake, *H. diversitatus* Drake, *H. elongatus* Drake, *H. lectus* Drake, *H. sideus* Drake and Poor, *H. vicarius* Drake and *H. villiers* Drake are quite distinct and valid species, they are here transferred to the genus *Haedus*. In addition to the above and including the new species in press here and

elsewhere, the genus *Haedus* now contains 15 described species, and is represented in the faunas of Africa, Madagascar, East Indies and the Orient. The species are all small, slender, without distinct metasternal orifice, and have long slender appendages. The antennal tubercles are long with blunt tips, about two-thirds as long as the first antennal segment. The outer margins of the paranota and elytra are serrate and also clothed (including entire dorsal surface) with short, pale, decumbent pubescence. The pronotum bears three long foliaceous carinae.

**HAEDUS JAVANCUS** Drake, new species

Small, oblong, blackish fuscous with antennae, legs and all but apical part of costal area whitish testaceous. Head dark brown armed with five long testaceous spines (median and front pair with some brown), with tips curved downward. Antennae very long, slender, measurements—I. 10; II. 8; III. 69; IV. 26. Antenniferous tubercles long, spiniform, brown. Bucculae brownish testaceous, contiguous in front. Legs long, slender, with tips of tarsi brownish. Pubescence sparse and pale. Hypocostal laminae uniseriate. Body beneath dark fuscous. Margins of paranota and elytra finely serrate.

Pronotum tricarinate, each carina nearly equally elevated and composed of one row of small areolae, anterior part of median and lateral carinae pale testaceous, paranota slightly reflexed, biseriate, with areolae clear and moderately large, outer margin a little concave, front margin concave with the antero-outer apex terminating in a straight spine. Elytra considerably constricted beyond the middle, widest near apex; costal area wide, biseriate, with large clear areolae; subcostal area mostly uniseriate, biseriate along raised boundary of discoidal; discoidal area elongate, about three-fifths as long as elytra, with apex and outer boundary beyond the middle elevated, with outer boundary vein deeply concave between elevation and apex, three areolae deep in widest part; sutural area with veinlets and some of the cells fuscous.

LENGTH, 3.10 mm.; width, 1.11 mm.

TYPE, Bandoeng, Preonger, Java, F. C. Drescher, British Museum.

Distinguished from *H. vicarius* (Drake) by the larger size, longer cephalic spines, darker color and more elevated apex and outer

boundary (beyond middle) of discoidal area. The median carina is slightly more elevated than the lateral in *vicarius*.

**ABDASTARTUS LONGULUS**, Drake, new species

Head black, with four very long, slender, porrect, testaceous spines (median wanting). Antenniferous tubercles short, blunt, fuscous. Antennae very long, very slender, smooth, pale testaceous with basal segment partly embrowned, measurements—I, 18; II, 10; III, 88; IV, 34. Legs long, slender, smooth, pale testaceous. Hypocostal ridge narrow, uniseriate. Body long, slender, beneath blackish fuscous.

Pronotum black, moderately convex, pitted, tricarinate, with very small areolae; median carina a little higher than lateral, pale in front; lateral carinae testaceous, slightly divergent anteriorly, the areolae tiny, barely visible; paranota very narrow, whitish, uniseriate, the areolae very small. Elytra constricted beyond the middle, widest apically; costal area narrow, slightly wider apically, whitish testaceous, with cross-veinlets fuscous, the areolae narrow, some short, others long; subcostal area black-fuscous, biseriate; discoidal area elongate, reaching to middle of elytra, black-fuscous, three areolae deep in widest part; sutural area with large cells, the veins and cells black-fuscous.

LENGTH, 3.00 mm.; width, 0.72 mm.

TYPE (male), Dehra Dun, U. P., India, Sept. 2, 1951, R. N. Kuthari, Drake Collection.

The very long antennae and legs and long slender body separate this insect from the two other members of the genus.

Genus **DULINIUS** Distant

*Dulinius* Distant, Ann. Soc. Ent. Belg., 47:48. 1903.

*Dulinius* Distant, Fauna Brit. India, Rhynchota, 2:136. 1904.

*Sankisia* Schoutenden, Rev. Zool. Africa, Brussels, 4(3):293. 1906.

As the type of the genera *Dulinius* Distant (*D. conchatus* Distant) and *Sankisia* Schouteden (*S. pulchra* Schouteden) are congeneric, the latter is here placed in synonymy (New synonymy). *Pulchra* is a valid species, and it is here transferred to the genus *Dulinius*. In addition to *conchatus* Distant and *pulchra* Schouteden, the genus *Dulinius* comprises *bellus* Drake, *Kraussi* Drake, *nigrolineatus* Distant and the two new species described below. The type of the genus,



*conchatus*, was described from India. *nigrolineatus* from the Seychelles and the rest from the mainland of Africa.

**DULINIUS CONGRUUS** Drake, new species

Broad, veinlets pale testaceous, areolae hyaline and without color markings. Antennae very long, densely clothed with fine, short, pale hairs, measurements—I, 20; II, 8; III, 110; IV, 50. Veinlets on sides of hood, convex surface of paranota and basal half of outer margins of elytra finely serrate. Orifice distinct, with testaceous rim. Bucculae open in front. Legs testaceous with tarsi brownish. Body beneath fuscous.

Paranota moderately convex, finely punctate, black-fuscous, with some bluish exudation; paranota large, conchate, subequal in length and width, obliquely reflexed, deeply concave within; hood moderately large, inflated, rounded above from lateral aspects with apex reaching beyond middle of first antennal segment, longer than high; median carina highly roundly arched from base to apex, a little longer than high, higher than hood, composed of four high cells (second cell with two small cells on top of it); lateral carinae higher than long, not quite half as high and one-third as long as median. Elytra very wide, widest beyond middle, with outer margins diverging posteriorly, with apices separated, with tumid elevation rather high and short, not attaining middle of elytra; costal area very wide, four areolae deep in widest part, a little turned up on expanded front margin; discoidal area wide, not attaining middle of elytra, sloping sharply inward, composed of five cells, outer boundary vein highest a little before apex, there subangulate. Posterior surface of hood with several long pale hairs; veinlets of elytra with a few scattered, short, pale hairs.

TYPE (female), Grahamstown, South Africa, October, 1952, Drake Collection.

Allied to *D. pulchrus* (Schouteden), but readily separated from it by the larger size, much wider costal area and shape of carinae. It ranks next to *D. bellus* Drake in size, but the latter is larger with much larger paranota, and the areolae are also distinctly larger.

**GENUS MECOPHARSA** Drake, new genus

Head short, with five spines. Rostrum moderately long; channel uninterrupted, open behind. Bucculae closed in front. Ostiolar canal

distinct. Antennae slender, extremely long; segment I longer than head across eyes; II very short; III, long; IV extremely convex; punctate; tricarinate; hood rather small; paranota long, moderately wide, reflexed, areolate. Elytra broad, much longer and wider than abdomen, divided into the usual areas; discoidal area almost attaining middle of elytra. Reticulation distinctly lacy; pronotum produced behind.

TYPE of genus, *Macropharsa hackeri*, n. sp.

Allied to the genus *Leptopharsa* stal, but readily separated from it and other lacy genera of *Tinginae* by the very long slender antennae with the fourth segment unusually long and subequal to the third; the paranota are not enormously developed.

#### MACROPHARSA HACKERI Drake, new species

Moderately large, oblong, testaceous with head, disc of pronotum and some veinlets in discal part of elytra embrowned. Eyes black. Body beneath brown. Head with five short testaceous spines, the anterior pair porrect and hind pair appressed. Rostrum brownish, reaching a little beyond mesosternum; laminae whitish, uniseriate, widely separated, open behind. Bucculae broad, areolate. Orifice with long prominently rimmed canal. Legs testaceous, very slender. Antennae testaceous with last segment mostly dark fuscous; segment I moderately swollen, four times as long as II; measurements—I, 36; II, 9; III, 90; IV, 90.

Pronotum moderately convex, finely pitted, tricarinate, each carina composed of one row of areolae; median carina a little higher than lateral, slightly arched on disc; lateral carinae feebly constricted behind disc, slightly concave within in front; hood small, subtectiform, feebly produced in front. paranota narrow, long, reflexed upright, with outer part curved in a little beyond the vertical line; hind triangular part areolate. Elytra rather broad, slowly widening posteriorly, overlapping a little but with the tips separated; costal area wide, triseriate in widest part, biseriate in front, the areolae large; subcostal area biseriate, with areolae small and rounded; discoidal area nearly reaching middle of elytra, narrowed at base and apex, widest at middle, there six areolae deep, the areolae rounded and slightly larger than in subcostal; sutural area large, with areolae larger in apical part, there as large as in costal area. Areolae hyaline.

Hypocostal laminae uniseriate. Wings whitish, longer than abdomen, much shorter than elytra.

LENGTH, 3.25 mm.; width, 1.25 mm.

TYPE (female), Conondal, Queensland, Australia, H. H. Hacking, in Drake Collection.

Separated at once from almost all other genera of lacy Tinginae by the form of the body, rather narrow paranota and extremely long fourth antennal segment, which is subequal in length to the third. *Neocypselas* Kirkaldy has the elytra abruptly widened near the base and enormously developed paranota.

**NESOCYPSELAS EVANSI** Drake, new species

Large, very broad, brownish with prominent dark fuscous markings. Antennae slender, testaceous with apical third of terminal segment brownish, densely clothed with rather short, fine, pale hairs, measurements—I, 36; II, 12; III, 105; IV, 98. Head reddish fuscous, unarmed; eyes black. Rostrum reaching to base of mesosternum. Legs testaceous with last tarsal segment black. Orifice with a long channel. Bucculae not quite meeting in front. Hypocostal laminae very narrow, uniseriate. Body beneath dark reddish brown. Male parameres long, strongly curved.

Pronotum moderately convex, very finely but not densely punctate, slightly shining, sparsely clothed with long fine hairs, tricarinate; carinae pale testaceous, thinly foliaceous, without distinct upright veinlets, the median carina disappearing behind disc; posterior process shortened, rounded behind, testaceous, areolate. Paranota extremely large, strongly reflexed, almost semiglobose, with outer margin high above disc and concave, longer than high, with almost every other transverse vein enlarged and infuscate, with veinlets (especially on lower half) finely serrate, the areolae largely embrowned with clear centres. Elytra very wide, abruptly widened near base with front margin there a little reflexed, with exterior margins finely closely serrate, with apices widely separated in response, with a wide band across basal part of costal area and another oblique subapical band (including areolae) dark fuscous; areolae between bands and in sutural area clear (transverse bands not fully formed in paratype); costal area very wide, six cells deep in basal three-fifths; subcostal area biseriate, with outer row of cells very small, the areolae clear; discoidal area elongate, not attaining middle



of elytra, three cells deep in widest part; veinlets with some fine short pale hairs which are more numerous on exterior margins.

LENGTH, 5.00 mm.; width, 3.00 mm.

TYPE (male), Taveuni, Waiyero, Fiji Is., Feb. 2, 1924, Dr. H. S. Evans, British Museum. PARATYPE: 1 specimen, broken antennae, same data as type.

**NESOCYPSELAS EVANSI AEMULUS** Drake, new subspecies

Differs from typical form by the smaller size, biseriate discoidal area and narrower costal area (five cells deep in widest part). Last two segments of antennae wanting. Markings as in *evansi*. LENGTH, 4.00 mm., width, 2.75 mm.

TYPE (female), Bau, Fiji Is., Sept., 1922, H. W. Simmonds, British Museum. PARATYPE: 1 specimen (female), same locality and date as type.



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